

What Is Claimed Is:

1. A storage device comprising:

a recording medium;

a head which reads data recorded on this recording medium;

an amplifier which amplifies the signal read by this head;

a channel which reproduces digital data from the read signal amplified by this amplifier; and

a comparator which compares a plurality of digital data values in the same byte position obtained from said head by a plurality of readings.

2. A storage device comprising:

a recording medium;

a head which reads data recorded on this recording medium;

an amplifier which amplifies the signal read by this head;

a channel which reproduces digital data from the read signal amplified by this amplifier;

a data memory which stores a plurality of digital data read a plurality of times by said head and reproduced by said channel;

a comparator which compares the values of the same byte positions of said plurality of digital data extracted

from said memory, and issues error pointers that ascertain the error positions;

a buffer memory which stores one or more digital data reproduced by said channel;

a syndrome generator which produces a syndrome from the digital data stored in said buffer memory;

a decoder which produces an erasure-locator polynomial from said erasure pointers, and which produces a modified error-locator polynomial and an error-magnitude polynomial from this erasure-locator polynomial and said syndrome; and

an error position generator which calculates errors from said modified error-locator polynomial and said error-magnitude polynomial.

3. An error correction method for a storage device comprising the steps of:

reading the same sector a plurality of times during the reproduction of data recorded on a recording medium;

storing the plurality of data thus obtained;

comparing the data values of bytes located in the same location among said stored plurality of data;

judging that an error has occurred in the data in positions where said values differ; and

correcting errors on the basis of these ascertained positions.

4. The error correction method for a storage device according to claim 3, wherein errors are corrected using erasure correction on the basis of said ascertained positions.

5. The error correction method for a storage device according to claim 3, wherein said sector is read three or more times, the values of the data positioned in said same location each time are compared, it is judged that an error has occurred in the data in positions where these values differ each time, and errors are corrected on the basis of these ascertained positions.

6. The error correction method for a storage device according to claim 5, wherein errors are corrected using erasure correction on the basis of said ascertained positions.

7. The error correction method for a storage device according to claim 3, wherein said sector is read three or more times, the values of the data positioned in said same location each time are compared, it is judged that an error has occurred in the data in positions where these values differ even one time, and errors are corrected on the basis of these ascertained positions.

8. The error correction method for a storage device according to claim 7, wherein errors are corrected using erasure correction on the basis of said ascertained positions.

9. An error correction method for a storage device comprising the steps of:

reading the same sector a plurality of times during the reproduction of data;

storing a plurality of digital data produced by conversion from the signal thus obtained;

comparing the values of data located at the same location for each byte from the leading end of this stored plurality of digital data; and

judging that an error has occurred in the data located in byte positions where the values differ, and storing [the resulting] error information.

10. The error correction method for a storage device according to claim 9, wherein errors are corrected using erasure correction on the basis of said ascertained positions.

11. An error correction method for a storage device comprising the steps of:

reading data recorded on a recording medium;  
amplifying this read signal;  
reproducing digital data from this amplified signal;  
storing a plurality of digital data read a plurality of times;

ascertaining error positions by comparing the values of said plurality of digital data in the same byte positions;

storing one or more of said reproduced digital data;  
producing a syndrome from said stored digital data;  
producing an erasure-locator polynomial from said erasure pointer;

producing a modified error-locator polynomial and an error-magnitude polynomial from said erasure-locator polynomial and said syndrome; and

calculating errors from said modified error-locator polynomial and said error-magnitude polynomial.

12. The error correction method for a storage device according to claim 11, wherein errors are corrected using erasure correction on the basis of said ascertained positions.